

What Is Claimed Is:

1. An absorbent composite comprising from about 20 to about 95 weight percent superabsorbent material, based on the total weight of the composite, and from about 80 to about 5 weight percent fibers, based on the total weight of the composite; wherein the absorbent composite has a Composite Permeability (CP) value at full swelling and a 3rd Insult Fluid Intake Flowback Evaluation (FIFE) intake rate (IR); and wherein the CP value and the IR value satisfy the following conditions:

when the IR value of the absorbent composite is greater than 0 ml/sec and less than about 3.00 ml/sec, the CP value is given by the following equation:

$$CP \geq \{135 - [(35/3) \times (3.00 - IR)]\} \times 10^{-8};$$

when the IR value of the absorbent composite is greater than about 3.00 ml/sec and less than about 3.70 ml/sec, the CP value is given by the following equation:

$$CP \geq \{175 - [(400/7) \times (3.70 - IR)]\} \times 10^{-8}; \text{ and}$$

when the IR value of the absorbent composite is greater than about 3.70 ml/sec, the CP value is greater than or equal to 175×10^{-8} , wherein CP has units of cm^2 .

2. The absorbent composite of Claim 1, wherein the CP value and the IR value satisfy the following conditions:

when the IR value of the absorbent composite is greater than 0 ml/sec and less than about 3.00 ml/sec, the CP value is given by the following equation:

$$CP \geq \{150 - [(35/3) \times (3.00 - IR)]\} \times 10^{-8};$$

when the IR value of the absorbent composite is greater than about 3.00 ml/sec and less than about 3.70 ml/sec, the CP value is given by the following equation:

$$CP \geq \{190 - [(400/7) \times (3.70 - IR)]\} \times 10^{-8}; \text{ and}$$

when the IR value of the absorbent composite is greater than about 3.70 ml/sec, the CP value is greater than or equal to 190×10^{-8} , wherein CP has units of cm^2 .

3. The absorbent composite of Claim 2, wherein the CP value and the IR value satisfy the following conditions:

when the IR value of the absorbent composite is greater than 0 ml/sec and less than about 3.00 ml/sec, the CP value is given by the following equation:

$$CP \geq \{165 - [(35/3) \times (3.00 - IR)]\} \times 10^{-8};$$

when the IR value of the absorbent composite is greater than about 3.00 ml/sec and less than about 3.70 ml/sec, the CP value is given by the following equation:

$$CP \geq \{205 - [(400/7) \times (3.70 - IR)]\} \times 10^{-8}; \text{ and}$$

when the IR value of the absorbent composite is greater than about 3.70 ml/sec, the CP value is greater than or equal to 205×10^{-8} , wherein CP has units of cm^2 .

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4. The absorbent composite of Claim 1, wherein the absorbent composite has a CP value at full swelling of greater than about $175 \times 10^{-8} \text{ cm}^2$.

5 5. The absorbent composite of Claim 1, wherein the absorbent composite has a CP value at full swelling of greater than about $190 \times 10^{-8} \text{ cm}^2$.

10 6. The absorbent composite of Claim 1, wherein the absorbent composite has a CP value at full swelling of greater than about $205 \times 10^{-8} \text{ cm}^2$.

15 7. The absorbent composite of Claim 1, wherein the absorbent composite has a CP value at full swelling of greater than about $225 \times 10^{-8} \text{ cm}^2$.

20 8. The absorbent composite of Claim 1, wherein the absorbent composite has a 3rd Insult FIFE intake rate of about 2.00 ml/sec and a CP value at full swelling of greater than about $125 \times 10^{-8} \text{ cm}^2$.

25 9. The absorbent composite of Claim 1, wherein the absorbent composite has a 3rd Insult FIFE intake rate of greater than about 0.1 ml/sec and a CP value at full swelling of greater than about $175 \times 10^{-8} \text{ cm}^2$.

30 10. The absorbent composite of Claim 1, wherein the absorbent composite has a 3rd Insult FIFE intake rate of greater than about 2.50 ml/sec and a CP value at full swelling of greater than about $175 \times 10^{-8} \text{ cm}^2$.

35 11. The absorbent composite of Claim 1, wherein the absorbent composite has a 3rd Insult FIFE intake rate of greater than about 3.00 ml/sec and a CP value at full swelling of greater than about $175 \times 10^{-8} \text{ cm}^2$.

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12. The absorbent composite of Claim 1, wherein the absorbent composite comprises from about 30 to about 90 weight percent superabsorbent material and from about 70 to about 10 weight percent fibers.

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13. The absorbent composite of Claim 12, wherein the absorbent composite comprises from about 40 to about 80 weight percent superabsorbent material and from about 60 to about 20 weight percent fibers.

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14. The absorbent composite of Claim 1, wherein the fibers have a water retention value (WRV) greater than about 0.2 g/g.

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15. The absorbent composite of Claim 14, wherein the fibers have a water retention value (WRV) greater than about 0.5 g/g.

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16. The absorbent composite of Claim 15, wherein the fibers have a water retention value (WRV) greater than about 0.7 g/g.

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17. The absorbent composite of Claim 16, wherein the fibers have a water retention value (WRV) greater than about 0.9 g/g.

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18. The absorbent composite of Claim 1, wherein the absorbent composite has a basis weight of superabsorbent material of greater than about 80 grams per square meter.

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19. The absorbent composite of Claim 18, wherein the absorbent composite has a basis weight of superabsorbent material of from about 80 grams per square meter to about 800 grams per square meter.

20. The absorbent composite of Claim 19, wherein the absorbent composite has a basis weight of superabsorbent material

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of from about 120 grams per square meter to about 700 grams per square meter.

5 21. The absorbent composite of Claim 20, wherein the absorbent composite has a basis weight of superabsorbent material of from about 150 grams per square meter to about 600 grams per square meter.

10 22. The absorbent composite of Claim 1, wherein the superabsorbent material comprises a sodium polyacrylate.

15 23. The absorbent composite of Claim 1, wherein the superabsorbent material has a Gel Bed Permeability (GBP) value of greater than about $70 \times 10^{-9} \text{ cm}^2$ and an Absorbency Under Load (AUL) value at 0.6 psi of less than about 25 g/g.

20 24. The absorbent composite of Claim 1, wherein the superabsorbent material has a GBP value of greater than about $70 \times 10^{-9} \text{ cm}^2$ and an AUL value at 0.6 psi of less than about 24 g/g.

25 25. The absorbent composite of Claim 1, wherein the superabsorbent material has a GBP value of greater than about $70 \times 10^{-9} \text{ cm}^2$ and an AUL value at 0.6 psi of less than about 23 g/g.

26. The absorbent composite of Claim 1, wherein the superabsorbent material has a GBP value of greater than about $70 \times 10^{-9} \text{ cm}^2$ and an AUL value at 0.6 psi of less than about 21 g/g.

30 27. The absorbent composite of Claim 1, wherein the superabsorbent material has a GBP value of greater than about $150 \times 10^{-9} \text{ cm}^2$ and an AUL value at 0.6 psi of less than about 25 g/g.

35 28. The absorbent composite of Claim 1, wherein the superabsorbent material has a GBP value of greater than about $150 \times 10^{-9} \text{ cm}^2$ and an AUL value at 0.6 psi of less than about 24 g/g.

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29. The absorbent composite of Claim 1, wherein the superabsorbent material has a GBP value of greater than about $150 \times 10^{-9} \text{ cm}^2$ and an AUL value at 0.6 psi of less than about 23 g/g.

5 30. The absorbent composite of Claim 1, wherein the superabsorbent material has a GBP value of greater than about $150 \times 10^{-9} \text{ cm}^2$ and an AUL value at 0.6 psi of less than about 21 g/g.

10 31. The absorbent composite of Claim 1, wherein the superabsorbent material has a GBP value of greater than about $250 \times 10^{-9} \text{ cm}^2$ and an AUL value at 0.6 psi of less than about 25 g/g.

15 32. The absorbent composite of Claim 1, wherein the superabsorbent material has a GBP value of greater than about $250 \times 10^{-9} \text{ cm}^2$ and an AUL value at 0.6 psi of less than about 24 g/g.

20 33. The absorbent composite of Claim 1, wherein the superabsorbent material has a GBP value of greater than about $250 \times 10^{-9} \text{ cm}^2$ and an AUL value at 0.6 psi of less than about 23 g/g.

34. The absorbent composite of Claim 1, wherein the superabsorbent material has a GBP value of greater than about $250 \times 10^{-9} \text{ cm}^2$ and an AUL value at 0.6 psi of less than about 21 g/g.

25 35. The absorbent composite of Claim 1, wherein the superabsorbent material has a pH value of from about 3 to about 8.

30 36. The absorbent composite of Claim 1, wherein the superabsorbent material has a pH value of from about 4 to about 8.

37. The absorbent composite of Claim 1, wherein the superabsorbent material has a pH value of from about 5.2 to about 8.

35 38. A method of making an absorbent composite, said method comprising:

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forming an absorbent composite comprising from about 20 to about 95 weight percent superabsorbent material, based on the total weight of the composite, and from about 80 to about 5 weight percent fibers, based on the total weight of the composite; wherein the absorbent composite has a Composite Permeability (CP) value at full swelling and a 3rd Insult Fluid Intake Flowback Evaluation (FIFE) intake rate (IR); and wherein the CP value and the IR value satisfy the following conditions:

when the IR value of the absorbent composite is greater than 0 ml/sec and less than about 3.00 ml/sec, the CP value is given by the following equation:

$$CP \geq \{135 - [(35/3) \times (3.00 - IR)]\} \times 10^{-8};$$

when the IR value of the absorbent composite is greater than about 3.00 ml/sec and less than about 3.70 ml/sec, the CP value is given by the following equation:

$$CP \geq \{175 - [(400/7) \times (3.70 - IR)]\} \times 10^{-8}; \text{ and}$$

when the IR value of the absorbent composite is greater than about 3.70 ml/sec, the CP value is greater than or equal to 175×10^{-8} , wherein CP has units of cm^2 .

39. The method of Claim 38, wherein the CP value and the IR value satisfy the following conditions:

when the IR value of the absorbent composite is greater than 0 ml/sec and less than about 3.00 ml/sec, the CP value is given by the following equation:

$$CP \geq \{150 - [(35/3) \times (3.00 - IR)]\} \times 10^{-8};$$

when the IR value of the absorbent composite is greater than about 3.00 ml/sec and less than about 3.70 ml/sec, the CP value is given by the following equation:

$$CP \geq \{190 - [(400/7) \times (3.70 - IR)]\} \times 10^{-8}; \text{ and}$$

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when the IR value of the absorbent composite is greater than about 3.70 ml/sec, the CP value is greater than or equal to 190×10^{-8} , wherein CP has units of cm^2 .

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40. The method of Claim 39, wherein the CP value and the IR value satisfy the following conditions:

when the IR value of the absorbent composite is greater than 0 ml/sec and less than about 3.00 ml/sec, the CP value is given by the following equation:

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$$\text{CP} \geq \{165 - [(35/3) \times (3.00 - \text{IR})]\} \times 10^{-8};$$

when the IR value of the absorbent composite is greater than about 3.00 ml/sec and less than about 3.70 ml/sec, the CP value is given by the following equation:

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$$\text{CP} \geq \{205 - [(400/7) \times (3.70 - \text{IR})]\} \times 10^{-8}; \text{ and}$$

when the IR value of the absorbent composite is greater than about 3.70 ml/sec, the CP value is greater than or equal to 205×10^{-8} , wherein CP has units of cm^2 .

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41. The method of Claim 38, wherein the absorbent composite is formed by an air-forming step.

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42. The method of Claim 38, wherein the absorbent composite has a basis weight of superabsorbent material of greater than about 80 grams per square meter.

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43. The method of Claim 38, wherein the superabsorbent material has a Gel Bed Permeability (GBP) value of greater than about $70 \times 10^{-9} \text{ cm}^2$ and an Absorbency Under Load (AUL) value at 0.6 psi of less than about 25 g/g.

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44. A disposable garment comprising at least one absorbent composite, wherein the at least one absorbent composite comprises from about 20 to about 95 weight percent superabsorbent material, based on the total weight of the composite, and from about 80 to about 5 weight percent fibers, based on the total weight of the composite; wherein the absorbent composite has a Composite Permeability (CP) value at full swelling and a 3rd Insult Fluid Intake Flowback Evaluation (FIFE) intake rate (IR); and wherein the CP value and the IR value satisfy the following conditions:

when the IR value of the absorbent composite is greater than 0 ml/sec and less than about 3.00 ml/sec, the CP value is given by the following equation:

$$CP \geq \{135 - [(35/3) \times (3.00 - IR)]\} \times 10^{-8};$$

when the IR value of the absorbent composite is greater than about 3.00 ml/sec and less than about 3.70 ml/sec, the CP value is given by the following equation:

$$CP \geq \{175 - [(400/7) \times (3.70 - IR)]\} \times 10^{-8}; \text{ and}$$

when the IR value of the absorbent composite is greater than about 3.70 ml/sec, the CP value is greater than or equal to 175×10^{-8} , wherein CP has units of cm^2 .

45. The disposable garment of Claim 44, wherein the CP value and the IR value satisfy the following conditions:

when the IR value of the absorbent composite is greater than 0 ml/sec and less than about 3.00 ml/sec, the CP value is given by the following equation:

$$CP \geq \{150 - [(35/3) \times (3.00 - IR)]\} \times 10^{-8};$$

when the IR value of the absorbent composite is greater than about 3.00 ml/sec and less than about 3.70 ml/sec, the CP value is given by the following equation:

$$CP \geq \{190 - [(400/7) \times (3.70 - IR)]\} \times 10^{-8}; \text{ and}$$

when the IR value of the absorbent composite is greater than about 3.70 ml/sec, the CP value is greater than or equal to 190×10^{-8} , wherein CP has units of cm^2 .

46. The disposable garment of Claim 45, wherein the CP value and the IR value satisfy the following conditions:

when the IR value of the absorbent composite is greater than 0 ml/sec and less than about 3.00 ml/sec, the CP value is given by the following equation:

$$CP \geq \{165 - [(35/3) \times (3.00 - IR)]\} \times 10^{-8};$$

when the IR value of the absorbent composite is greater than about 3.00 ml/sec and less than about 3.70 ml/sec, the CP value is given by the following equation:

$$CP \geq \{205 - [(400/7) \times (3.70 - IR)]\} \times 10^{-8}; \text{ and}$$

when the IR value of the absorbent composite is greater than about 3.70 ml/sec, the CP value is greater than or equal to 205×10^{-8} , wherein CP has units of cm^2 .

47. The disposable garment of Claim 44, wherein the superabsorbent material has a Gel Bed Permeability (GBP) value of greater than about $70 \times 10^{-9} \text{ cm}^2$ and an Absorbency Under Load (AUL) value at 0.6 psi of less than about 25 g/g.